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| **Lesson Title:** Structure and Function of Cells |
| **Subject area / course / grade level:** 5th Grade Science |
| **Introduction:** Once students have entered the room, I will bring out a small paper plate. On the paper plate will be a small “blob” of pink and red play dough mixed with bright red silly putty. The “blob” will be placed on a smear of red paint. It will be covered in clear plastic wrap. I will NOT tell the students what it is or what it represents until all have seen it. I will then tell them that it is supposed to represent a piece of heart tissue. I will write the word***tissue*** on the board. I will ask them from what ***organ***the tissue was excised. I will write *organ* on the board. I will show them a large plastic 3 dimensional model of a heart. I will ask them the function of the heart in the body. I will tell them that the heart is part of a ***system***in the body. I will ask them to name the system. I will then say, if we put a small piece of the heart tissue under a microscope, what would be the very smallest part of the tissue. (cell) I will write the word ***cell*** on the board. I will have the following words written in the following order on the board: **system/organ/tissue/ cell**. I will tell the students that we are going to carefully examine both plant and animal cells today. |
| **Lesson Length:** 45 minutes/one class period |
| **Materials:** A small model of heart tissue, a model of a heart, 4 big laminated colored teacher made animal and plant cells (each group will have a plant and animal cell), a set of laminated and colored organelles for each cell, a set of laminated cards containing the name of the organelle, a set of laminated cards containing the function of each organelle/ extra play dough/ student computers/ promethean boards/ individual dry erase boards and a marker for each student/ 4 small containers of jello (20 total)/ various candies to be used for organelles in the cell model/2 ziploc bags per group/ 5 small green ziploc storage containers (one per group-resembles a small Tupperware bowl-will serve as the cell wall in the plant cell) |
| **Lesson Overview:** Following introduction activities above, students will be divided into (teacher assigned) heterogeneous groups of approximately 4-5 students and will move to the floor. Each group will be given a teacher made laminated plant cell and animal cells containing no organelles. Students will be given a set of laminated cards containing the name of the organelle, a set of laminated cards containing the function of each organelle and a Ziploc bag containing colored paper model of organelles. Students and will be instructed to place the organelles and the name cards ONLY on the appropriate cell. Students will then place the card containing the function of each organelle on the appropriate organelle. I will closely monitor groups as needed for assistance, instruction and evaluation purposes. Students will then remove the organelles and cards from the cells and spread them out where each member of the group can see them; large cells will be taken up. We will play a game. I will call out the name of the organelle, and students must hold up the paper organelle. The group that has a representative STANDING and holding up the correct organelle is the winner. We will do the same thing, but I will call out the function, and the students must stand and hold up the name card. Another variation is for me to hold up the picture of the organelle and the students hold up the name and function cards. After the game, we will move back to our group tables and construct a 3-D model of a plant and animal cell using Ziploc bags (cell membrane), jello (cytoplasm) the one small green Tupperware like container is the cell wall for the plant cell, and various candies will serve as organelles. I will closely monitor groups as needed for assistance, instruction and evaluation purposes. Upon completion of that activity, we will watch a Brain Pop video on the structure and function of cells. First we will skip to the quiz so we know specifically what questions students will answer.  Next we will watch the video. After the video, we will do an interactive quiz. Each student will be given an individual dry erase board and marker. The question will be posted, and each child will document their answer (A, B, C, or D) on their dry erase board. After each question, we will check and discuss student answers, *specifically which answer choices are incorrect and* ***what made the answer incorrect.*** To conclude, we will orally review the lesson concepts. |
| **Tennessee Standards:**  **TN Grade 5** Standard 1 : Cells |
| **Lesson objective(s):**  Students will review (through hands on activities and games) the basic differences between a plant and animal cell ; the organelles and their functions within the cell ; that cells are the smallest part of any living organism (cells/tissues/organs/systems) |
| **ENGAGEMENT**   * Student interest will be captured when, as stated above, I have a small piece of red silly putty mixed with red play dough on a paper plate with red paint all around it and I tell them that it is a model of heart tissue. This should get students interest and assist them in remembering our discussion on cells/tissue/organ/system from the fall. I did not do the above activity in the fall. |
| **EXPLORATION**  Students will engage in a team activity in which they identify the organelle and place it on the appropriate cell. Students will construct a 3-D model of a cell using jello, Ziploc bags, and various candies. Students will watch a Brain Pop video about cells and do an interactive quiz on the video. |
| **EXPLANATION**   * Students will have a better knowledge of the function of cells in their own bodies when we engage in the discussion of cells/tissues/organs/systems. Teacher will ask questions such as: Explain how a heart cell works in your body to assist in your bodily functions. Compare the organelles to organs in your own bodies (responses should be something like “the nucleus resembles the brain as it directs the activities in the cell…it is the control center” “the vacuole is similar to our bladder.” ,Explain the relationship between cells and tissues?, If you were to compare an egg to a cell, which part of the egg is most similar to the cell membrane? Why?, Explain what composes the majority of a cells interior. |
| **ELABORATION**  Through the hands on activity, game, construction of the cell model and the quiz, students will gain knowledge of the structure and function of plant and animal cells.   * As this is a review lesson, the vocabulary will not be *introduced,* but instead *reviewed.* * Student discussion of cells/tissues/organs/systems gives them a better conception of the way cells work in their own bodies. The discussion of the cell wall in a plant cells gives them a better conception of why a plant is able to stand erect. |
| **EVALUATION**  Students will be evaluated based on their knowledge of the objective as evidenced by: correct placement of organelles on the appropriate cell and correct identification of same; verbal answers in the team game; correct construction of the 3-D model of a plant and animal cell; at least 80% mastery of the Brain Pop Quiz. |